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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/519,055
Filing Date: December 22, 2004
Appellant(s): VERHAEGH, WILHELMUS

____
Dicran Halajian

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 04/15/2009 appealing from the Office action mailed on 11/17/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

The Inventor's name for Patent # 7,042,442 should be spelled Kanevsky.

Claims 13-14 are currently listed as rejected over Kanevsky in view of Gantenbein. Claims 13-14 were actually rejected over Hatakeyama in view of Kanevsky and further in view of Gantenbein.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

7042442	**Kanevsky et al.**	**5-2006**

Japanese Publication JP 9330175 A, Hatakeyama et al., 12-1997

Gantenbein, D "Soft Adaptive Follow-Finger Keyboard for Touch-Screen Pads" IBM TDB v36 n11 11-93 p5-8

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 3-6, 10-12, 15, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Kanevsky et al. (US Patent # 7,042,442)

As for claim 10, Hatakeyama et al. (Figs. 5, 20) discloses:

A data processing device enabling a user to input characters (Paragraph [0007])*, the device comprising:*

a touch-sensitive member (240) (Paragraph [0008]) *arranged to function as a virtual keyboard* (430) (Paragraph [0013]),

said member including touch sensors (each lattice point on the grid) *for detecting a plurality of touched zones* (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) *on said member* (Paragraph [00081)*, the touch sensors sensing a force of at least one finger on the touch-sensitive member* (Paragraph [0008]);

a stroke recognition means which recognizes a key stroke by analyzing

a relative position of a zone touched by a finger causing a higher force (second pressure range) *on the touch-sensitive member relative to positions of zones* **previously** *touched by other fingers with a lower force* (first pressure range)*, such that the key stroke is determined by the relative position of the higher force touched zone relative to the lower force* **previously** *touched zones* (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force

in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

Hatakeyama et al. does not teach analyzing a position based on at least one other zone concurrently touched with a lower force.

In the same field of endeavor (i.e. virtual keyboards) Kanevsky et al. discloses a virtual keyboard which continually monitors the hand and finger positions and moves the keyboard to maintain the relationship between certain keys and certain fingers (Col. 6, lines 17-44).

This idea of maintaining of relationship between particular keys and particular fingers can be easily combined with Hatakeyama et al. by performing the steps to allocate the reference keys (Paragraph [0082]) repeatedly to adjust the location of the reference keys, and hence the entire keyboard, to match the location of the user's hands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of maintaining of relationship between particular keys and particular fingers disclosed in Kanevsky et al. in the touch-sensitive keyboard of Hatakeyama et al. to prevent the user from loosing their basic hand positions (Kanevsky et al., Col. 6, lines 24-30).

As such, combining Hatakeyama et al. with Kanevsky et al. teaches:

a stroke recognition means which recognizes a key stroke by analyzing

a relative position of a zone touched by a finger causing a higher force (second

pressure range) *on the touch-sensitive member relative to positions of zones concurrently touched by other fingers with a lower force* (first pressure range)*, such that the key stroke is determined by the relative position of the higher force touched zone relative to the lower force concurrently touched zones* (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Modifying Hatakeyama et al. with Kanevsky et al. teaches repeatedly allocating the reference keys and determining the location of the other keys from the reference keys, including during the time period when another key was pressed with a force in the second pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers concurrently placed on the keyboard with a force in the first pressure range).

As for claim 11, Hatakeyama et al. discloses:

A data processing device for enabling a user to input characters, the device comprising:

a touch-sensitive member (240) *arranged to function as a virtual keyboard* (430) (Paragraphs [0008], [0013])*,*

said member including sensors (each lattice point on the grid) *for detecting touched zones* (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) *on said member and for sensing a force of at least one finger on the touch-sensitive member* (Paragraph [0008])*, the sensors being configured to identify a finger causing a force on the touch-sensitive member zone that is higher than a force from other fingers when more than one finger touches said*

member (Paragraph [0008])*;*

a key allocation means for allocating at least two reference keys (F key to index finger of left hand, J Key to index finger of right hand) *of the virtual keyboard to respective zones on said member in response to said detection of touched zones* (Paragraph [0082])*; and*

a key stroke recognition means configured to recognize a key stroke by analyzing a relative position of the zone touched with a higher force (second pressure range) *with respect to a position of at least one other zone* **previously** *touched with a lower force* (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

Hatakeyama et al. does not teach analyzing a position based on at least one other zone concurrently touched with a lower force.

In the same field of endeavor (i.e. virtual keyboards) Kanevsky et al. discloses a virtual keyboard which continually monitors the hand and finger positions and moves the keyboard to maintain the relationship between certain keys and certain fingers (Col. 6, lines 17-44).

This idea of maintaining of relationship between particular keys and particular fingers can be easily combined with Hatakeyama et al. by performing the steps to

allocate the reference keys (Paragraph [0082]) repeatedly to adjust the location of the reference keys, and hence the entire keyboard, to match the location of the user's hands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of maintaining of relationship between particular keys and particular fingers disclosed in Kanevsky et al. in the touch-sensitive keyboard of Hatakeyama et al. to prevent the user from loosing their basic hand positions (Kanevsky et al., Col. 6, lines 24-30).

As such, combining Hatakeyama et al. with Kanevsky et al. teaches:

a key stroke recognition means configured to recognize a key stroke by analyzing a relative position of the zone touched with the higher force (second pressure range) *with respect to a position of at least one other zone concurrently touched with a lower force* (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Modifying Hatakeyama et al. with Kanevsky et al. teaches repeatedly allocating the reference keys and determining the location of the other keys from the reference keys, including during the time period when another key was pressed with a force in the second pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers concurrently placed on the keyboard with a force in the first pressure range).

As for claim 3, Hatakeyama et al. teaches:

wherein the at least one touch sensor is further arranged to determine a parameter of a respective one of the touched zones, said key allocation means being arranged to allocate the reference keys having a size and/or form on said touch-sensitive member depending on said parameter of the respective detected zone (Paragraphs [0085]-[0088]).

As for claim 4, Hatakeyama et al. teaches:

wherein said key allocation means is arranged to allocate said other keys having a size and orientation on said touch-sensitive member depending on relative locations of the detected touch sensitive zones (Paragraphs [0085]-[0088]).

As for claim 5, Hatakeyama et al. teaches:

wherein said key allocation means is arranged to allocate four or eight reference keys (Fig. 5 shows 8 fingers being detected corresponding to the eight keys of the home position) *upon detecting four fingers of the user's left hand and/or four fingers of the user's right hand touching the touch-sensitive member* (Paragraphs [0080]-[0081]).

As for claim 6, Hatakeyama et al. teaches:

wherein said virtual keyboard has a QWERTY-type layout (Paragraph [0080]).

As for claim 12, Hatakeyama et al. teaches:

wherein said at least one zone with the lower force corresponds to at least one of said reference keys (Paragraph [0081], the position of any of the four fingers of each hand as initially placed on the keyboard with a lower force identifies a reference key touched with a lower force).

As for claim 15, Hatakeyama et al. teaches:

wherein said touch-sensitive member further comprises:

a display means arranged to display a representation of at least one reference key and/or other key of the virtual keyboard (Paragraph [0081]).

As for claim 18, Hatakeyama et al. teaches:

A method enabling a user to input characters, the method comprising:

a step of detecting touched zones (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) (Paragraph [0008]) *on a touch-sensitive member* (240) *configured to function as a virtual keyboard* (430), (Paragraph [0008], Paragraph [0013]), *and*

a step of allocating at least two reference keys (F key to index finger of left hand, J Key to index finger of right hand) *of the virtual keyboard to respective zones on said member in response to said detection of touched zones* (Paragraphs [0082]-[0083])*, and,*

a step of sensing a force of at least one finger on a touched zone of the touch-sensitive member (Paragraph [0008])*,*

a step of identifying a finger causing a force (second pressure range) *on the touched zone of the touch-sensitive member higher than a force* (first pressure range) *caused by other fingers on the touched zone when more than one finger touches said member* (Paragraph [0008])*,*

and

a step of recognizing a key stroke by analyzing a relative position of the zone touched with the higher force with respect to a position of at least one other zone **previously** *touched with a lower force*, (Paragraph [0008], The location of the keys is determined

based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

Hatakeyama et al. does not teach analyzing a position based on at least one other zone concurrently touched with a lower force.

In the same field of endeavor (i.e. virtual keyboards) Kanevsky et al. discloses a virtual keyboard which continually monitors the hand and finger positions and moves the keyboard to maintain the relationship between certain keys and certain fingers (Col. 6, lines 17-44).

This idea of maintaining of relationship between particular keys and particular fingers can be easily combined with Hatakeyama et al. by performing the steps to allocate the reference keys (Paragraph [0082]) repeatedly to adjust the location of the reference keys, and hence the entire keyboard, to match the location of the user's hands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of maintaining of relationship between particular keys and particular fingers disclosed in Kanevsky et al. in the touch-sensitive keyboard of Hatakeyama et al. to prevent the user from losing their basic hand positions (Kanevsky et al., Col. 6, lines 24-30).

As such, combining Hatakeyama et al. with Kanevsky et al. teaches:

a step of recognizing a key stroke by analyzing a relative position of the zone touched with the higher force (second pressure range) *with respect to a position of at least one other zone concurrently touched with a lower force* (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Modifying Hatakeyama et al. with Kanevsky et al. teaches repeatedly allocating the reference keys and determining the location of the other keys from the reference keys, including during the time period when another key was pressed with a force in the second pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers concurrently placed on the keyboard with a force in the first pressure range).

As for claim 19, Hatakeyama et al. teaches:

A computer-readable medium with instructions that are executed on a program computer to perform the method as defined in claim 10 (Paragraph [0001]).

2. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Kanevsky et al. as applied to claims 11-12, 15, and 18 above, and further in view of Gantenbein (IBM Technical Disclosure Bulletin, Vol. 36, No. 11, November 1993 “Soft Adaptive Follow-Finger Keyboard for Touch-Screen Pads”).

As for claim 13, Hatakeyama et al. as modified by Kanevsky et al. teaches all the limitations of claim 11.

However, Hatakeyama et al. as modified by Kanevsky et al. does not teach repeatedly allocating at least one of the reference keys.

In the same field of endeavor (i.e. virtual keyboards) Gantenbein discloses:

further comprising:

a key correction means for correcting a location of at least one of the reference keys by repeatedly allocating at least one of the reference keys (Page 5, lines 1-3, Page 6, lines 2-11, Page 7, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the key correction means of Gantenbein in the touch-sensitive keyboard of Hatakeyama et al. as modified by Kanevsky et al. to increase the hit success ratio (Gantenbein, Page 7, lines 27-30).

As for claim 14, Gantenbein teaches:

wherein said key correction means functions upon detecting a change of position of at least one of said other fingers (Page 6, lines 2-8).

(10) Response to Argument

Regarding the rejection of claims 3-6, 10-12, 15, and 18-19 as unpatentable over Hatakeyama in view of Kanevsky, Applicant argues:

“As correctly noted on page 3 of the Final Office Action, Hatakeyama does not disclose or suggest "a stroke recognition means which recognizes a key stroke by analyzing a

relative position of a zone touched by a finger causing a higher force on the touch-sensitive member relative to positions of zones concurrently touched by other fingers with a lower force, such that the key stroke is determined by the relative position of the higher force touched zone relative to the lower force concurrently touched," as recited in independent claim 10, and similarly recited in independent claims 11 and 18. Column 6, lines 17-44 of Kanvesky is cited in an attempt to remedy the deficiencies in Hatakeyama.

Kanvesky is directed to a virtual invisible keyboard where a recognition system of gestures maps sequences of gestures to keys strings. Column 6, lines 17-44 merely discloses that a camera 700 detects pictures of the user hands and a keyboard mapper module 702 scales the keyboard to fit it to hand positions 705.

It is respectfully submitted that the disclosure in column 6, lines 17-44 of Kanvesky has nothing to do with anything touched by any force, let alone concurrently touching different zones by different fingers with different forces."

The Applicant overstates the portion of the claim the Examiner indicated was not taught by Hatakeyama. In the rejection on page 3 of the Final Office Action the Examiner shows how Hatakeyama teaches the entire quoted claim language above except that the "concurrently touched zones" are "previously touched zones" in Hatakeyama. Therefore, the only limitation that must be taught by the combination of Hatakeyama with Kanevsky is modifying the "previously touched zones" of Hatakeyama to become "concurrently touched zones".

While using a camera system instead of a pressure sensitive touchpad, the virtual keyboard of Kanevsky continually updates the position of the keys on the keyboard while simultaneously detecting key presses. When this concept of continually updating of the key position is applied to the virtual keyboard of Hatakeyama, the “previously touched zones” of Hatakeyama become “concurrently touched zones” as described on pages 4-5 of the Final Office Action. Therefore Kanevsky is not required to teach anything touched by any force or concurrently touching different zones by different fingers with different forces because Hatakeyama already teaches touching different zones by different fingers with different forces. Kanevsky is simply relied upon to teach the concept of continually updating the key position, which when applied to the virtual keyboard of Hatakeyama, changes the “previously touched zones” to “concurrently touched zones”.

Applicant further argues:

“Even, assuming arguendo, that Kanvesky discloses continuously monitoring a virtual keyboard and updating the relationships among the keyboard keys, as alleged in the Advisory Action, any such continuously monitoring and updating is performed using cameras. 'Previously touched' keys that become 'concurrently touched' by virtue of the disclosure in Kanvesky of 'continuously monitoring,' as alleged in the Advisory Action, still does not remedy the deficiencies Hatakeyama, where the combination of Hatakeyama and Kanvesky still does not disclose or suggest recognizing a key stroke by analyzing relative positions of zones concurrently touched with different (e.g., higher and lower) forces, as recited in independent claims 10-11 and 18. Gantenbein is cited to

allegedly show other features and does not remedy the deficiencies in Hatakeyama and Kanvesky."

As stated above, Kanevsky is simply relied upon to teach the concept of continually updating the key position. The fact the Kanevsky does this using a camera does not matter because it is the concept of continually updating the key position being applied to Hatakeyama, not the physical system used in Kanevsky to implement this concept. As explained on page 4 of the Final Office Action, this concept is applied to Hatakeyama by repeatedly performing the steps to allocate the reference keys, instead of only performing the allocation steps a single time when the user first puts their hands on the touchpad.

Regarding the rejection of claims 13-14 as unpatentable over Hatakeyama in view of Kanvesky and Gantenbein, Applicant argues:

"as correctly noted on page 11 of the Final Office Action, Kanvesky does not disclose or suggest "a key correction means for correcting a location of at least one of the reference keys by repeatedly allocating at least one of the reference keys," as recited in claim 13. Gantenbein is cited in an attempt to remedy the deficiencies in Kanvesky.
Gantenbein is directed to a soft adaptive follow-finger keyboard for touch-screen pads, where the software-emulated keyboard adapts to the characteristics of a particular operator's hands, such as by automatically adjusting and following to the overall handprint. Although Gantenbein discloses automatic following of the user's fingers/hands, doing so by "repeatedly allocating at least one of the reference keys," as

recited in claim 13 is nowhere disclosed or suggested in Gantenbein. Gantenbein is silent about any reference keys, let alone correcting the location of at least one of the reference keys by repeatedly allocating at least one of the reference keys, as recited in claim 13."

Applicant's argument hinges on the fact that Gantenbein does not use the term "reference keys". However, Gantenbein clearly teaches correcting the location of every key on the keyboard, and therefore not matter what key of the keyboard applicant wishes to define as a reference key, Gantenbein teaches correcting the location of at least one of the reference keys by repeatedly allocating it. As for which keys are the reference keys, Hatakeyama already teaches at least two reference keys (F key and J key) as explained in the rejection of claim 11 on page 5 of the Final Office Action.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Robert E. Carter III/

Conferees:

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629